

WE CLAIM:

1. A method for converting organic waste into a beneficial humus material comprising:

collecting organic waste;

combining said organic waste with an aqueous or water containing flowable stream

thereby creating a combined waste stream;

treating said combined waste stream in an aqueous environment containing 10^{15} or more biological microorganisms with an average doubling time of less than 30 days to promote the growth of microbial populations thereby subjecting the organic waste to biological conversion and treatment;

monitoring the amount of dissolved oxygen in said aqueous environment;

maintaining less than 2.0 mg/l of dissolved oxygen in said aqueous environment via an aeration means to promote the growth of microorganisms using facultative pathways; and

separating solids from the aqueous environment for the recovery of an organic humus material.

2. The method of claim 1 wherein said microbial populations include major populations of facultative heterotrophic fermentors, autotrophic nitrifiers, heterotrophic facultative denitrifiers, and autotrophic ammonium denitrifiers.

3. The method of claim 1 wherein said microbial populations include major populations of autotrophic nitrifiers and facultative heterotrophic denitrifiers generally combined with facultative heterotrophic fermentors and autotrophic ammonium denitrifiers, the process further comprising the addition of chemicals to provide an electron acceptor for the denitrification of nitrite or nitrate by facultative heterotrophic denitrifiers.
4. The method of claim 1 wherein the aqueous stream is a recycle of said combined waste stream from said aqueous environment.
5. The method of claim 1, wherein the combined waste stream comprises a concentration of BOD and TKN of at least about 100 mg/l, and a TKN to total BOD ratio of more than about 1:20.
6. The method of claim 1 wherein the dissolved oxygen concentration is maintained at a concentration of less than 0.1 mg/l substantially throughout said aqueous environment.
7. The method of claim 1 wherein said aqueous environment contains at least 10^{17} biological microorganisms with a doubling time of 10 days or less.

8. The method of claim 5 wherein said aqueous environment contains at least 10^{13} biological microorganisms with an average doubling time of less than 30 days per pound of total BOD or TKN in said combined waste stream
9. The method of claim 1 wherein the combined waste stream comprises total BOD and TKN at concentrations of at least about 100 mg/l, and a TKN to total BOD ratio of more than about 3:20.
10. The method of claim 1 wherein said aqueous environment includes a concentrating means to maintain microorganism quantity within said aqueous environment.
11. The method of claim 10 further comprising the recovery of liquid effluent from said aqueous environment.
12. The method of claim 10 further comprising recovery of the liquid effluent from said aqueous environment for further biological treatment in a second aqueous environment.
13. The method of claim 12 further comprising recovery of the liquid effluent from said

second aqueous environment for further biological treatment in a wetlands environment comprising plants and microorganisms to yield a substantially pollutant free liquid effluent and recoverable solids.

14. The method of claim 13 wherein said wetlands environment is dewatered and the solids therein are harvested to recover a beneficial humus material.

15. The method of claim 13 wherein the biologically treated effluent is discharged to a receiving water body.

16. A substantially odorless beneficial organic humus material, said humus material being harvested from a substantially odorless, biological treatment process comprising; combining organic waste with an aqueous stream thereby creating a combined waste stream; treating said combined waste stream in an aqueous environment reactor system containing 10^{15} or more biological microorganisms with an average doubling time of less than 30 days to promote the growth of major microbial populations of facultative heterotrophic fermentors, autotrophic nitrifiers, heterotrophic facultative denitrifiers and autotrophic ammonium denitrifiers thereby subjecting the organic waste to biological treatment; monitoring the amount of dissolved oxygen in said aqueous environment;

maintaining less than 2.0 mg/l of dissolved oxygen in said aqueous environment via an aeration means to promote the growth of microorganisms using facultative pathways; and separating solids from the aqueous environment for the recovery of an organic humus material.

17. The humus material of Claim 16, mixed with at least one of clay, sand, silt, mud, soil, gravel, dust, mine tailings and dredgings, polymers, plastics or other inert or inorganic materials.